Space Weather Forecast

Issued on Thursday, 12 May 2022 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of isolated R1-R2 radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with a long period flare from 11/1859UTC which consisted of a long period flare from a region from around the western hemisphere combined with a short flare from AR3007. Two coronal mass ejections have been detected from this event, one from each flare, although further computation is needed, currently no ejecta is thought to be earth directed. There are currently four numbered sunspots on the visible disk, perhaps with returning regions soon to arrive on the eastern limb. There are two large and complex spots in the south, one of which i showing signs of increased complexity. There are also two small and simple spots in the northern hemisphere, these mirroring the longitudes of the larger spots to the south.

Solar Wind / Geomagnetic Activity: The solar wind has remained at slow-ambient speeds, though there was a notable rise between 11/1200-1315 UTC, likely from a weak transient. Total interplanetary magnetic field strength was weak, becoming moderate between 11/1240-2115 UTC. The important north-south component of the Bz was also weak initially, becoming moderately negative between 11/1724-2030 UTC. Although solar wind parameters indicate a glancing CME/transient during the second half of 11th May, due to the low speed, no significant geomagnetic activity has been achieved. Geomagnetic activity has been Quiet throughout (Kp 0-2).

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low with background C-class flares probable due to the presence of two sizable sunspot regions in the south, namely AR3007. There is a continual chance of this increasing into Moderate activity and a slight chance of it perhaps briefly raising to High activity.

Solar Wind / Geomagnetic Activity: No significant enhancements are expected in solar winds in the next 4 days, though there remains an uncertain chance of activity during day 1 or 2 (12 or 13 May) due to a potential shock from the Strong flare from the 10th. Therefore, geomagnetic activity is currently expected to be mainly Quiet (Kp 0-2) with isolated Unsettled (Kp3) periods.

Energetic Particles / Solar Radiation: Solar radiation (high energy protons) are currently not expected to exceed thresholds over the next 4 days.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	2	2
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	40	40
Very Active	R3 to R5 X	Yes	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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